The Zoology — Law interface: dingoes, the environment and pesticides

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G. F. Humphrey

Honorary Associate, School of Biological Sciences, University of Sydney; Barrister, Supreme Court of New South Wales

There are several types of Zoology — Law interfaces. Many zoologists find themselves called upon to appear in legal situations to advise about some aspects of their science or of the particular work they have done. At the other extreme, they are sometimes called as expert witnesses to give opinions on situations of which they have no first-hand knowledge. For example, four zoologists were called as expert witnesses in the Chamberlain Royal Commission. Nine were called in the unsuccessful prosecution of Professor Messel on a charge of having illegally taken barramundi and magpie geese (Humphrey 1992).

Thus, zoologists sometimes enter the legal arena to defend or accuse animals; sometimes to explain what an animal really is and how its environment can be affected by human activities; and sometimes to remind the law that most animals are not pests.

ANIMAL ALLEGATIONS

The most famous animal to be put into the dock is the Chamberlain dingo. Dingoes have been accused of many transgressions, but only once have they featured in a murder trial as the alleged killer of a human. A finding of the first inquest into the disappearance of Azaria Chamberlain on 17 August 1980, was that death followed an attack by a wild dingo. The second inquest led to the trial of the parents, each receiving a guilty verdict. The subsequent Royal Commission was established "to inquire into doubts or questions as to" the guilt of the parents and details of the trial evidence (Morling 1987a). After considering that evidence, and new evidence uncovered by the Commission, the Commissioner stated "I do not think any jury could properly convict" the Chamberlains on a charge of murder (Morling 1987b). He added "the evidence affords considerable support for the view that a dingo may have taken her" (Morling 1987c).

The Commissioner's terms of reference did not require him to decide the guilt or otherwise of dingoes, nor did he do so. The prosecution case relied largely on there being no explanation for the disappearance, other than murder by the parents. The defence contention that a dingo was responsible depended on a chain of unlikely but plausible circumstances.

The chain started with the fact that Ayres Rock dingoes are atypical in that they prowl close to humans because humans encourage them to approach to be given food (Morling 1987d). Dingoes have attacked children and in 1961 there was an authenticated instance of a 1-year-old Aboriginal baby being carried off by a semi-domesticated dingo. The area was the Great Sandy Desert in South Australia. The state of the remains, which were found by an engineer in a survey party, suggested that the missing parts had been eaten. Also, there were several biting attacks near Ayers Rock in the few months preceding Azaria's disappearance. The chain continued with the fact that all the clothing found was about 5 km from the parent's camp. The jumpsuit and other clothing found on 24 August 1980 were about 30 m from a dingo den. The matinee jacket found on 2 February 1986 was about 120 m from the den. The top button of the jacket was done up, but it would have been possible to pull the jacket over the baby's head since the collar had been cut for about 20 mm, as had been the jumpsuit.

However, although saliva was detectable in tests made with dingoes tearing meat from similar clothes, no saliva was detected on Azaria's clothes. Since the tests showed that dingo teeth cuts are no longer than 10 mm, a 20 mm cut would have needed two matching bites. Further, the tests showed greater overall damage than that found to Azaria's clothing. The Commissioner concluded that "although a dingo would have had difficulty in removing Azaria's body from her clothing without causing more damage to it, it was possible for it to have done so" (Morling 1987e).

Against the defence contention of dingo responsibility, it seems unlikely that a dingo could have entered the tent and caused the shambles later found, without having woken Reagen, the four-year-old child sleeping there. Inconsistencies and improbabilities in Mrs Chamberlain's account of the evening's events confuse, rather than clarify, the sightings of dingoes in the area at the relevant time (Morling 1987f).

Mrs Chamberlain stated that she saw a dingo near the entrance to the tent shaking its head but the light was so poor that she could not see if there was anything in its mouth. However, the light was powerful enough for her to see from the barbecue area into the tent and for her to see minute details of the dingo's face and ears. Her accounts of the direction in which the dingo ran were inconsistent. It is possible that some of the inconsistencies and improbabilities could be explained by there being more than one dingo involved.

Unfortunately, both the defence and prosecution cases are circumstantial and incomplete. Therefore, the final position is that the Commission did not examine the evidence to see if dingoes were really guilty, but did try to prove that they were innocent. The Commission failed to prove that innocence. Because of the evidence of witnesses who were in contact with the Chamberlains during the evening, the Commissioner found that the prosecution case could not be accepted beyond reasonable doubt. He was not required to examine whether the Chamberlains had committed the crime in a way not alleged by the prosecution.

ANIMALS IN THE ENVIRONMENT

The law includes animals as part of the environment and therefore when the law protects the environment it sometimes protects animals. The law also protects animals directly, e.g., by the *National Parks and Wildlife (Marine Mammals Protection) Amendment Act 1989.* However, some laws protect environments against animals, e.g., by the *Wild Dog Destruction Act 1921* and the *Rural Lands Protection Act 1989.* This latter Act illustrates a way in which the law ignores science. Part of the Act deals with the "suppression and destruction of noxious animals and noxious insects". Any "animal or bird" or "insect" can be declared noxious. Since the word "animal" is not used in its zoological sense it needs defining, but the Act does not do so.

With the above Acts, and other Acts, lawyer and scientist time is consumed at great expense to clarify what the word means in a particular context, e.g., an appeal to the High Court of Australia *(Davern v Messel 1984)* was necessary to overturn a decision of the Northern Territory Supreme Court interpreting Section 26(2) of the *Territory Parks and Wildlife Conservation Act NT* as meaning that "birds were not 'animals' ".

An Act which is frequently invoked to protect the environment is the *Environmental Planning and Assessment Act 1979.* This Act is often used to deal with effects on the environment of "designated developments" or of "activities". Developments and activities are defined in words which give much scope for judicial interpretation. They include erecting or using buildings, and subdividing or using land. Any development can be put into the designated class by using the powers given by Sections 29 or 158.

The Act requires that an Environmental Impact Statement be prepared for any proposal for a designated development and for any activity which "is likely to significantly affect the environment". The environment is defined in Section 4 as "all aspects of the surroundings of man" and thus includes the ecology of the animals local to the area under consideration. Unfortunately, ecological aspects are usually not fully argued. This is partly because lawyers are unfamiliar with ecological concepts and partly because the area is usually not sufficiently studied for its ecology to be reduced to evidence which a court can understand, let alone evaluate.

A recent matter where ecological aspects were accorded some weight in preventing a development is the Inquiry into the Proposed Tourist Resort and Marina at Brooklyn on the Hawkesbury River (Woodward and Cleland 1990). The Inquiry was conducted pursuant to Section 119 of the EPA Act, thus allowing a consideration of the EIS which had been prepared for the original application. Among the reasons for rejection of the proposal were three concerned with protecting animals. First, the development would interfere with the use of the area for oyster storage and purification; second, the nearby Long Island Nature Reserve would be threatened by the probable increase in tourist visits; and third, the area was probably a substantial nursery ground for prawns and fish.

The Inquiry lasted for three weeks and was noteworthy for several features. Lawyers reduced their fees for the main objector, a resident action group. One of the Commissioners was an engineer. Much of the scientific evidence advanced by the developer was rejected. That evidence was chiefly chemical and physical in nature, the important ecological issues being left to be raised by the various objectors. This gave zoologists an opportunity to explain work which they had themselves done in the area.

ANIMALS AS VERMIN

The *Pesticides Act 1978* controls the registration and use of pesticides. Section 5 defines a pest as including "any vermin or other troublesome or destructive form of animal life". This definition is effectively widened by the fact that "pesticide" includes anything "destroying vegetation of altering its natural development, productivity, quality or reproductive capacity". Unfortunately, most pesticides are not species-specific so non-target animals are often at risk. Additional risk follows when there is disturbance of the food-web. The only non-target animal to be protected by the Act is the human.

Some protection for non-target animals might be obtained by using Section 16E of the Act. In sub-section 2(c) (ii) this gives the Minister power to refuse registration if there has been "a likely deleterious effect on the environment notified to the Minister by the Director of the State Pollution Control Commission or the Director of National Parks and Wildlife". If the EPA Act definition of the environment can be imported into the working of the *Pesticides Act*, then the Directors have a responsibility to protect non-target animals. That pesticides can injure such animals is known from the experiments conducted on them to justify claims of adverse effects on humans.

Litigation about the use of pesticides in agricultural areas largely ignores possible effects on local fauna, e.g., in *Rundle v Tweed Shire Council and Anor (1989)* Mrs Rundle sought an order under the EPA Act that the Council should prepare an EIS before continuing to spray 2: 4–D on a local area of groundsel-infested land. Her contention that such spraying "is likely to significantly affect the environment" was based mainly on her fear that there would be side-effects adverse to humans. It was rejected. No evidence on the occurrence of animals in the area and consequently on likely effects of 2: 4–D on such animals was advanced.

Another Act which might afford some protection to non-target animals by use of the EPA Act definition of the environment is the one which controls farming uses of any chemical. It is the *Agricultural and Veterinary Chemicals Act 1988 (Cth.).* Section 3(1)c gives a purpose of the Act as "minimising any undue hazard to . . . (ii) the environment . . . (iv) agricultural products and livestock". Local fauna are not mentioned but could be considered as part of (ii). However, their involvement in any particular situation would have to be argued on every occasion.

In all instances involving the use of chemicals against animals, the zoologist is in difficulty, being able to present only life-history, distribution, and ecology of the animals. Biochemical and pharmacological support is needed. Apart from the difficulty of assembling and funding such a battery of expertise, there are the problems of getting the lawyers to understand such a complex mosaic of science and to present it effectively in court.

CONCLUSIONS

Zoologists have a large and important part to play in a growing class of legal matters. Their task is rendered unnecessarily difficult by our adversary system of law and by the unfamiliarity of lawyers with scientific concepts. These concepts cannot be learnt by studying a few science subjects at pass level at a university. The experience of doing research is needed.

Correspondingly, science students cannot familiarize themselves with legal concepts by studying a few law subjects. Perhaps our senior law firms should develop a system of grants to young research scientists to enable them to enter the legal profession. A more immediate amelioration of the position would be obtained if lawyers took scientists fully into the teams they assemble to prepare and present a case.

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